NON-PUBLIC?: N
ACCESSION #: 8802240272

LICENSEE EVENT REPORT (LER)

PAGE: 1 of 5

FACILITY NAME: H. B. Robinson Steam Electric Plant, Unit No. 2

DOCKET NUMBER: 05000261

TITLE: Automatic Reactor Trip Due To Turbine Trip On Loss Of Autostop Oil Pressure
EVENT DATE: 01/19/88 LER #: 88-001-00 REPORT DATE: 02/18/88

OPERATING MODE: N POWER LEVEL: 066

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Don Sayre, Senior Specialist - Regulatory Compliance
TELEPHONE #: 803-383-1242

COMPONENT FAILURE DESCRIPTION:
CAUSE: F SYSTEM: TG COMPONENT: RV MANUFACTURER: L300
REPORTABLE TO NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: An automatic reactor trip occurred at 0216 hours, Tuesday, January 19, 1988. The trip was initiated by an automatic turbine trip on a two-out-of-three autostop oil pressure logic. The turbine was under surveillance testing at the time, with the reactor at 66 percent power. Normal operation over a period of years had apparently caused the seat of one of the two autostop oil pressure regulating valves to wear so that the valve was unable to hold pressure. When the trip test lever was returned to the reset position following the turbine overspeed trip test, the backpressure further aggravated the relief and sufficient pressure was lost to cause the turbine trip and, subsequently, the automatic reactor trip. Both regulating valves were replaced with valves of a known higher reliability in accordance with recommendations from the turbine vendor. The reactor and turbine were returned to power operation using standard startup and operating procedures. The licensee notified the NRC Emergency Operations Center via the Emergency Notification System pursuant to 10CFR50.72(b)(2)(ii) for a four-hour

nonemergency event. This report is submitted pursuant to 10CFR50.73(a)(2)(iv).

(End of Abstract)

I. DESCRIPTION OF EVENT

An automatic reactor trip occurred at 0216 hours, Tuesday, January 19, 1988.(1,2) The trip was initiated by an automatic turbine trip on a two-out-of-three autostop oil pressure logic.(3,4)

The turbine was under a routine (monthly) surveillance test of its overspeed trip mechanism at the time, in accordance with Operations Surveillance Test procedure OST-551.(5) The overspeed trip portion of the test had just been completed and the operator had returned the trip lever to the reset position when the turbine tripped on loss of autostop oil pressure. Three licensee operators were involved in the surveillance. Two were located at the front standard of the turbine. One was responsible for opening test valves to create trip signals and to watch changes in pressures. The other was responsible for manipulating the trip test lever, a dead-man type lever which prevents a turbine trip during the test. The third was responsible for watching for changes in pressures from inside the high pressure turbine enclosure. They had completed the low vacuum low bearing oil and thrust bearing trip tests and were resetting the trip signal for overspeed trip when the turbine tripped.

(1) H. B. Robinson Steam Electric Plant, Unit No. 2 is a Westinghouse 700 MW Pressurized Water Reactor plant, in commercial operation since March 1971.

(2) Reactor trip EIIS Codes: Systems - JC; Component - Not available; Manufacturer - W120.

(3) Turbine trip EIIS Codes: System - JJ; Component - Not available; Manufacturer - W120.

(4) Autostop oil pressure logic EIIS Codes: System - TG; Component - Not available; Manufacturer - W120.

(5) OST-551, Revision 4: Turbine Valve and Trip Functional Test (Monthly Interval during Power Operation)

I. DESCRIPTION OF EVENT (Continued)

Reactor power was at 66 percent of rated power at the time (490 MWe net), with Reactor Coolant System average temperature (T-AVG) at 562 degrees Farenheit. The first-out annunciator was TURBINE TRIP TRIP followed by LO LO LEVEL in the three steam generators. Both reactor trip breakers functioned properly and opened. The Feedwater regulating valves automatically closed when T-AVG decreased to 554 degrees Farenheit.

The licensee notified the NRC Emergency Operations Center of the event at 0336 hours, in accordance with 10CFR50.72(b)(2)(ii) for a four-hour nonemergency event, via the Emergency Notification System.

Reactor startup commenced at 1316 hours, with criticality achieved at 1349 hours. The turbine was latched for return to operation at 1417 hours.

II. CAUSE OF THE EVENT

The autostop oil system includes two pressure regulating valves, LO-57 and LO-58, which are set to regulate system pressure. LO-57 was leaking by and relieving pressure far below the design setpoint. Apparently, normal operation over a period of years had caused the seat to wear so that the valve was unable to hold pressure. When the operator reset the trip test lever, the backsurge of oil pressure further aggravated the relief. The combined relief reduced oil pressure and the interface emergency trip valve responded as designed.

III. ANALYSIS OF EVENT

The event posed no significant safety implications. The Engineered Safety Features and Reactor Protection System performed as designed.(6,7)

Fundamentally, the autostop oil header is linked to the high pressure fluid turbine emergency trip (8) header by means of a diaphragm-operated interface emergency trip valve. This valve is hydraulically operated utilizing autostop oil supplied to the oil header by the main oil pump discharge. Loss of autostop oil pressure will open the interface valve, releasing the electro-hydraulic fluid to drain by allowing the valve's compression spring to open. This causes the turbine trip system to automatically actuate and the turbine to trip.

This Licensee Event Report is submitted pursuant to 10CFR50.73(a)(2)(iv).

IV. CORRECTIVE ACTIONS

Both autostop oil pressure regulating valves, LO-57 and LO-58, were replaced with valves having a known higher reliability in accordance with recommendations from the turbine vendor.

Plant documents are being updated to reflect the new LO-57 and LO-58 valves.

The reactor and turbine were returned to operation.

(6) ESF EIIS Codes: System - JE; Component - Not available; Manufacturer - W120.

(7) RPS EIIS Codes: System - JC; Component - Not available; Manufacturer - W120.

(8) EIIS Codes: System - T6; Component - FCV; Manufacturer - W120.

V. ADDITIONAL INFORMATION

A. Failed Component Identification

The original autostop oil pressure relief valves were Lunkenheimer valves supplied by the turbine vendor, Westinghouse. The replacement valves are Fisher Type 98H relief valves supplied by the turbine vendor.

B. Prior Events

There have been no automatic reactor trips caused by a turbine trip due to loss of autostop oil pressure via the autostop oil pressure relief valves.

CP&L
Carolina Power & Light Company

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Feb 18, 1988

Robinson File No: 13510C Serial: RNPD/88-0878
(10 CFR 50.73)

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
LICENSEE EVENT REPORT 88-001-00

Gentlemen:

The enclosed Licensee Event Report (LER) is submitted in accordance with 10 CFR 50.73 and N
REG-1022 including Supplements No. 1 and 2.

Very truly yours,
/s/ D. R. Swick
for R. E. Morgan
General Manager
H. B. Robinson S. E. Plant

DAS:lko
Enclosure
cc: Dr. J. N. Grace
Mr. L. W. Garner
INPO

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